thought through the solution of problems; (3) cultivating the language power through the careful reading of problems, and their careful and accurate solution.

(1) Rapidity and accuracy of calculation require patient and systematic practice. It is suggested that in addition to the exercises here provided, there shall be much oral class work, and this in all the grades. For it is possible for a pupil to be proficient in the junior grades, and to become slow and inaccurate later on. It is even possible for a pupil who knows the endings for purposes of addition and subtraction, to add by ones at a later stage. When it is remembered that in the solution of problems, the energy expended in calculation is so much energy lost to reasoning, it will be evident that pupils should be as perfect as possible in the semi-mechanical operations of addition, subtraction, multiplication and division.

(2) The power of thinking is developed in pupils as they make the relations necessary to computation, and necessary to the solution of practical problems. All numerical relations, such as the 9's in 47, or the sum of 18 and 19, should be thought out, not learned by rote. The thinking out of these relations is quite an effort for young people. Yet such thought-effort is not to be compared with that which is put forth in the solution of complex problems where the conditions are perceived with difficulty.

(3) Thought is perfected through expression. One of the reasons why arithmetic is such a valuable school study is because it gives such an opportunity for exact expression of clearly-perceived truth. The relations in arithmetic are all definite, and on this account the expression can be accurate. It should be a rule in teaching, that a question is not solved when the answer is found. It is finished when the method of solution has been set forth in suitable language. The power to read and the power to compose are essential to the arithmetician. Without the former he can never perceive the conditions of a problem; without the latter he can never make it clear that he has perceived the conditions and made the necessary relations.

In the presentation of new principles, teachers will naturally begin with the concrete, and will make use of small numbers. As the princi-